

U. S. Department of  
Homeland Security

United States  
Coast Guard



Commandant  
United States Coast Guard

2100 Second Street, S.W.  
Washington, DC 20593-0001  
Staff Symbol: G-ICA  
Phone: (202) 366-4280  
FAX: (202) 366-7124

**DEPARTMENT OF HOMELAND SECURITY**

**U. S. COAST GUARD**

**STATEMENT OF**

**CAPT MARK O'MALLEY  
CHIEF, OFFICE OF PORT AND FACILITY ACTIVITIES**

**AND**

**CAPT PETER BOYNTON  
CAPTAIN OF THE PORT FOR LONG ISLAND SOUND**

**ON**

**THE COAST GUARD'S ROLE IN LNG SAFETY AND SECURITY**

**BEFORE THE**

**COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE**

**SUBCOMMITTEE ON COAST GUARD AND MARITIME TRANSPORTATION**

**U. S. HOUSE OF REPRESENTATIVES**

**MAY 7, 2007**

## **Introduction**

Good morning Mr. Chairman and distinguished members of the Committee. I am Captain Mark O'Malley, Chief, Office of Port and Facility Activities at U.S. Coast Guard Headquarters. It is my pleasure to appear before you today to discuss the Coast Guard's role in providing for the safety and security of Liquefied Natural Gas (LNG) vessels and facilities, and how the Coast Guard is cooperating with other Federal Agencies on this important national issue. I am joined by Captain Peter Boynton, Captain of the Port for Long Island Sound, who will address the Coast Guard's role as it relates to the LNG facility that Broadwater Energy has proposed to build and operate in the Sound.

As the Federal Government's lead agency for Maritime Homeland Security, the Coast Guard plays a major role in ensuring marine transportation of LNG, including LNG vessels, shoreside terminals, terminals located in state waters and LNG deepwater ports, are operated safely and securely, and that the risks associated with the marine transportation of LNG are managed responsibly. Today, I will briefly review the applicable laws and regulations that provide our authority and the requirements for the safe and secure operation of the vessels, shoreside terminals, and terminals located in state waters and deepwater ports. I will also describe how the Coast Guard is working with the other Federal entities here today, as fellow stakeholders in LNG safety and security.

## **LNG Vessel Safety**

The Coast Guard has long recognized the unique safety and security challenges posed by transporting millions of gallons of LNG or "cryogenic methane." LNG vessels have had an enviable safety record over the last 45 years. Since international commercial LNG shipping began in 1959, tankers have carried over 40,000 LNG shipments and while there have been some serious accidents at sea or in port, there has never been a breach of a ship's cargo tanks. Insurance records and industry sources show that there were approximately 30 LNG tanker safety incidents (e.g. leaks, groundings or collisions) through 2002. Of these incidents, 12 involved small LNG spills which caused some freezing damage but did not ignite. Two incidents caused small vapor vent fires which were quickly extinguished.

Today, there are over 200 LNG vessels operating worldwide and another 100 or so under construction. While there are no longer any US flag LNG vessels, all LNG vessels calling in the U.S. must comply with certain domestic regulations in addition to international requirements. Our domestic regulations for LNG vessels were developed in the 1970s under the authority of the various vessel inspection statutes now codified in Title 46 United States Code. Relevant laws providing the genesis for LNG vessel regulation include the Tank Vessel Act (46 U.S.C. 391a) and the Ports and Waterways Safety Act of 1972, as amended by the Port and Tanker Safety Act of 1978 (33 U.S.C. 1221, *et. seq.*). Regulations located in Title 46, Code of Federal Regulations (CFR) Part 154, "Safety Standards for Self-Propelled Vessels Carrying Bulk Liquefied Gasses," specify requirements for the vessel's design, construction, equipment and operation. Our domestic regulations closely parallel the applicable international requirements, but are more stringent in the following areas: the requirements for enhanced grades of steel for crack arresting purposes in certain areas of the hull, specification of higher allowable stress factors for certain independent type tanks and prohibiting the use of cargo venting as a means of cargo temperature or pressure control.

All LNG vessels in international service must comply with the major maritime treaties agreed to by the International Maritime Organization (IMO), such as the International Convention for the Safety of Life at Sea, popularly known as the “SOLAS Convention” and the International Convention for the Prevention of Pollution from Ships, popularly known as the “MARPOL Convention.” In addition, LNG vessels must comply with the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk, known as the “IGC Code.”

Before being allowed to trade in the United States, operators of foreign flag LNG carriers must submit detailed vessel plans and other information to the Coast Guard’s Marine Safety Center (MSC) to establish that the vessels have been constructed to the higher standards required by our domestic regulations. Upon the MSC’s satisfactory plan review and on-site verification by Coast Guard marine inspectors, the vessel is issued a Certificate of Compliance. This indicates that it has been found in compliance with applicable design, construction and outfitting requirements.

The Certificate of Compliance is valid for a two-year period, subject to an annual examination by Coast Guard marine inspectors, who verify that the vessel remains in compliance with all applicable requirements. As required by 46 U.S.C. 3714, this annual examination is required of all tank vessels, including LNG carriers.

### **LNG Vessel Security**

In addition to undergoing a much more rigorous and frequent examination of key operating and safety systems, LNG vessels are subject to additional measures of security when compared to crude oil tankers, as an example. Many of the special safety and security precautions the Coast Guard has long established for LNG vessels derived from our analysis of “conventional” navigation safety risks such as groundings, collisions, propulsion or steering system failures. These precautions pre-dated the September 11, 2001 tragedy, and include such measures as special vessel traffic control measures that are implemented when an LNG vessel is transiting the port or its approaches, safety zones around the vessel to prevent other vessels from approaching nearby, escorts by patrol craft and, as local conditions warrant, coordination with other Federal, state and local transportation, law enforcement and/or emergency management agencies to reduce the risks to, or minimize the interference from other port area infrastructure or activities. These activities are conducted under the authority of existing port safety and security statutes, such as the Magnuson Act (50 U.S.C. 191 *et. seq.*) and the Ports and Waterways Safety Act, as amended.

Since September 11, 2001, additional security measures have been implemented, including the requirement that all vessels calling in the U.S. must provide the Coast Guard with a 96-hour advance notice of arrival (increased from 24 hours advance notice pre-9/11). This notice includes information on the vessel’s last ports of call, crew identities and cargo information. In addition, the Coast Guard now regularly boards LNG vessels at-sea, where Coast Guard personnel conduct special “security sweeps” of the vessel and ensure it is under the control of proper authorities during its port transit. In order to protect the vessel from external attack, LNG vessels are escorted through key port areas. These armed escorts afford protection to the nearby population centers by reducing the probability of a successful attack against an LNG vessel. These actions are in addition to the safety and security oriented boardings previously described.

Of course, one of the most important post-9/11 maritime security improvements has been the passage of the Maritime Transportation Security Act of 2002 (MTSA). Under the authority of MTSA, the Coast Guard developed a comprehensive new body of security measures applicable to vessels, marine facilities and maritime personnel. Our domestic maritime security regime is closely aligned with the International Ship and Port Facility Security (ISPS) Code. The ISPS Code, a mandatory requirement of the SOLAS Convention, was adopted at the IMO in December 2002 and came into effect on July 1<sup>st</sup> 2004. Under the ISPS Code, vessels in international service, including LNG vessels, must have an International Ship Security Certificate (ISSC). To be issued an ISSC by its flag state, the vessel must develop and implement a threat-scalable security plan that, among other things, establishes access control measures, security measures for cargo handling and delivery of ships stores, surveillance and monitoring, security communications, security incident procedures, and training and drill requirements. The plan must also identify a Ship Security Officer who is responsible for ensuring compliance with the ship's security plan. The Coast Guard rigorously enforces this international requirement by evaluating security compliance as part of our ongoing port state control program.

Any LNG vessel entering Long Island Sound would be subject to strict safety and security standards. There would be a moving security zone around the LNG carriers and a fixed safety zone around the proposed Floating, Storage and Regasification Unit (FSRU). Coast Guard enforcement activities would be based on the most current threat assessment as well as standing Coast Guard policy and procedures which account for known and unknown threats. State and local law enforcement agencies could assist the Coast Guard with the enforcement of these safety zones. Another element of the extensive layered security system established by MTSA is Coast Guard approved facility security plans. Implementing the facility security plan for the FSRU would be Broadwater Energy's responsibility. An element of the facility security plan for the FSRU would include the employment of private security guards to conduct on-water security patrols in the vicinity of the FSRU. Private security guards would not have the authority to enforce the fixed or moving safety zones.

### **Safety and Security of LNG Terminals Located Onshore and in State Waters**

Presently there are six shoreside LNG terminals in the U.S. and U.S. Territories: the export facility in Kenai, AK; and, import terminals in Everett, MA; Cove Point, MD; Elba Island, GA; Lake Charles, LA; and Penuelas, PR. Under Title 33, CFR Part 127, the Coast Guard has responsibility for the facility's waterside "marine transfer area" and the Department of Transportation's Pipeline and Hazardous Materials Safety Administration has responsibility for shoreside portion of the facility. The safety requirements regulated by the Coast Guard in the marine transfer area include electrical power systems, lighting, communications, transfer hoses and piping systems, gas detection systems and alarms, firefighting equipment, and operational matters such as approval of the terminal's Operations and Emergency Manuals and personnel training.

The recently promulgated "Maritime Security Regulations for Facilities," found in Title 33 CFR Part 105, were developed under the authority of MTSA. These regulations require the LNG terminal operator to conduct a facility security assessment and develop a threat-scalable security plan that addresses the risks identified in the assessment. Much like the requirements prescribed for vessels, the facility security plan establishes access

control measures, security measures for cargo handling and delivery of supplies, surveillance and monitoring, security communications, security incident procedures and training and drill requirements. The plan must also identify a Facility Security Officer who is responsible for ensuring compliance with the facility security plan. The six existing U.S. LNG terminals were required to submit their security plans to the Coast Guard for review and approval in 2003 and full implementation of the plans was required by July 1, 2004. These reviews have been completed, and the terminals' compliance with the plans has been verified by local Coast Guard port security personnel through on-site examinations. In contrast to our safety responsibility, whereby our authority is limited to the "marine transfer area," our authority regarding the security plan can, depending upon the particular layout of the terminal, encompass the entire facility.

The Natural Gas Act, as amended by the Energy Policy Act of 2005, states the Federal Energy Regulatory Commission (FERC) shall have the exclusive authority to approve or deny an application for the siting, construction, expansion or operation of an LNG terminal. For its part, the Coast Guard has determined that the proposed FSRU is an offshore structure and will be regulated the same as any LNG facility. Therefore, it, like the existing shoreside LNG facilities, would be subject to the MSTA requirements of 33 CFR 105 and facility requirements of 33 CFR 127.

The Natural Gas Act, as amended by the Energy Policy Act of 2005 also requires LNG terminal operators to develop an Emergency Response Plan in consultation with the USCG, State and Local agencies. Part of the process of developing the ERP is to identify any additional resources that may be required or needed by State or Local agencies to meet the additional response requirements. Once identified the plan must also include a cost-sharing plan and is subject to approval by FERC prior to any final approval to begin construction is issued.

### **Siting Shoreside LNG Terminals Located Onshore and in State Waters**

The issue of constructing new shoreside LNG terminals and those located in state waters has been controversial, due in large part to public concerns over both perceived and actual risks to the safety and security of LNG vessel operations. Under the Natural Gas Act, the Federal Energy Regulatory Commission (FERC) has permitting authority, including safety review of facility siting, for LNG terminals onshore and within state waters. The Coast Guard does not determine or approve the location of a facility proposed to be constructed either offshore or inside state waters. .

However, the Coast Guard plays an important role in the siting process once it has begun. Along with an application to the FERC, an owner or operator who intends to build a new shoreside LNG facility, facility located inside state waters, or who plans new construction on an existing facility, must submit a "Letter of Intent" to the Coast Guard Captain of the Port (COTP) in whose zone the facility is located (in accordance with 33 CFR 127.007). This letter must provide information on: the physical location of the facility; a description of the facility; the characteristics of the vessels intended to visit the facility and the frequency of visits; and, charts that show waterway channels and identify commercial, industrial, environmentally sensitive and residential areas in and adjacent to the waterway to be used by vessels enroute to the facility, within 15.5 miles of the facility.

The COTP reviews the information provided by the applicant and issues a Letter of Recommendation (LOR) as to the suitability of the waterway for LNG vessels. Factors considered include: density and characteristics of marine traffic in the waterway; locks, bridges or other man made obstructions in the waterway; the hydrologic features of the waterway, e.g., water depth, channel width, currents and tides, natural hazards such as reefs and sand bars; and underwater pipelines and cables. If the waterway is found suitable the COTP will issue a Letter of Recommendation (per 33 CFR 127.009). The COTP may also issue an LOR that finds the waterway suitable provided certain measures are implemented to manage potential safety and security risks that were identified during the assessment process. Lastly, the COTP can issue an LOR that finds the waterway not suitable. In addition, the Coast Guard serves as a cooperating agency with FERC for purposes of the National Environmental Policy Act (NEPA) review of those aspects of the project over which we have jurisdiction.

Both the Coast Guard and the FERC recognize that the “Letter of Recommendation” process, which dates from 1988, does not, in its current form, adequately take into account the security concerns of our post 9/11 environment. Also, the existing regulations are focused primarily on conventional navigation safety risk management issues such as traffic density, hydrologic characteristics of the waterway, etc. They do not focus on port security risk management issues, and in particular, they do not directly require an analysis of the consequences of an LNG spill on the waterway proposed for vessel transits.

To address this problem, on February 10, 2004, the Coast Guard entered into an Inter-Agency Agreement (IAA) with FERC and RSPA to work in a coordinated manner to address issues regarding safety and security at shoreside LNG facilities, including terminal facilities and tanker operations, to work together, avoid duplication of effort, and to maximize the exchange of relevant information related to the safety and security aspects of LNG facilities and the related maritime concerns.

Soon after the completion of the IAA, work began on a more detailed guidance document for use by the involved agencies. On 14 Jun 05, the Navigation and Vessel Inspection Circular (NVIC) 05-05, “*Guidelines on Assessing the Suitability of a Waterway for LNG Marine Traffic*,” was published to provide guidance on how to conduct and validate a Waterway Suitability Assessment so that full consideration is given to the safety and security of the port, the facility, and vessels transporting the LNG. Simply put, it established a uniform national process for conducting port-specific risk and waterway suitability assessments.

Under the NVIC 05-05 guidelines, since the Coast Guard is also a cooperating agency for the preparation of the FERC’s Environmental Impact Statement (EIS), this guidance assists the Coast Guard in obtaining all information needed to assess the proposed LNG marine operations and fulfill its commitment to FERC to provide input to their EIS.

The Waterway Suitability Assessment (WSA) process put forth in the NVIC uses a risk management approach to developing mitigation measures for the hazards introduced to the affected waterway due to the nature of LNG. The NVIC requires the applicant to conduct a risk analysis of the waterway and propose mitigating measures. In addition, the applicant is required to do an analysis of the resources necessary to close existing resource gaps in proposed safety and security to perform the proposed mitigation measures. This WSA process usually begins very early in the process, typically during the FERC’s pre-filing period.

There wasn't a NVIC outlining this process, prior to when Broadwater Energy submitted the Letter of Intent in November 2004 for the proposed FSRU and a WSA was not prepared for this project. As provided for by the NVIC, the Coast Guard COTP Long Island Sound conducted a thorough, systematic assessment that involved representatives from 50 stakeholders of potential safety and security risks associated with the proposed FSRU.

In addition to an evaluation of conventional navigation safety risks, a critical part of the safety and security assessment was an analysis of an LNG spill on the waterway and the thermal effects from a resulting pool fire. The analysis includes the application of the hazard distances and zones of concern based on the spill consequence models described in the 2004 Sandia National Labs Report. The hazard zone sizes for the proposed project are larger than those in the Sandia Report due to the consideration of the larger cargo tanks on the next generation of LNG carriers and the incorporation of the FSRU. It should also be noted that project specific modeling shows that with only some exceptions in hazard zone 3, none of the high risk area touch land.

Once the FERC's EIS is published, it can be adopted by the Coast Guard if it meets all of the Coast Guard's NEPA requirements. If so, the Coast Guard issues a Record of Decision that adopts the EIS for our Letter of Recommendation process.

When the Coast Guard's WSA validation process is complete, the COTP makes a preliminary finding regarding the suitability of the waterway, whether the waterway can accommodate the proposed traffic and whether there is sufficient capability within the port community to responsibly manage the safety and security risks of the project. This preliminary finding is communicated to the FERC in a Waterway Suitability Report (WSR).

As previously stated, the safety and security assessment of potential risks associated with the proposed Broadwater Energy project that was conducted by the Captain of the Port Long Island Sound included input from 50 stakeholders. A Harbor Safety Working Group composed of waterway users including the CT Department of Environmental Protection, Cross Sound Ferry, Suffolk County Fire and Rescue and 25 others was formed to review the safety risks assessment compiled by the COTP and to help evaluate proposed risk mitigation measures. Additionally, a Sub Committee of the Long Island Sound Area Maritime Security Committee including representatives from Homeland Security, Transportation Security Administration (Aviation), Customs and Border Protection, Federal Bureau of Investigation, Nassau County Police Department and 15 other agencies, was established to assess potential security risks associated with the proposed facility. Extensive public input was also received through written comments that were submitted to the Coast Guard's docket for this project and during public scoping meetings that were held with FERC in 2005.

The WSR for the proposed Broadwater Energy project conveys the assessment and analysis and a preliminary determination by the COTP of the mitigation measures that would be necessary for the vessel to safely and securely transit to the proposed facility. The WSR was submitted to FERC and was incorporated into the EIS. FERC addressed in the EIS the potential environmental impacts of the proposed vessel transits on the waterway, the environmental impacts of the proposed risk mitigation measures and the public safety and environmental impacts of a LNG spill and fire on the waterway. After the final EIS is

published, the Coast Guard will issue a Record of Decision and a “Letter of Recommendation” to the owner or operator of the proposed facility, and to the state and local government agencies having jurisdiction, as to the suitability of the waterway for the proposal (33 CFR 127.009).

The Coast Guard is also working on the regulatory changes in 33 CFR Part 127 necessary to bring the existing “Letter of Intent” and “Letter of Recommendation” regulations up to date, specifically by requiring the waterways management information to be submitted to the COTP at the time of FERC “pre-filing” or conventional application, and adding specific requirements for a port security assessment, in addition to the waterways management information, to be presented to the COTP for evaluation.

### **LNG Deepwater Ports: Authority and Agency Relationships**

The Coast Guard’s authority to regulate Deepwater Ports (DWPs) derives from the Deepwater Port Act of 1974 (DWPA). The regulations pertaining to the licensing, design, equipment and operation of DWPs are found in Title 33 CFR Subchapter NN (Parts 148, 149 and 150). Originally pertaining only to oil, MTSA amended the DWPA to include natural gas. This Act allows for the licensing of DWPs in the Exclusive Economic Zone, outside of state waters, along all maritime coasts of the United States. The Secretary of the Department of Homeland Security (DHS) and the Secretary of DOT delegated the processing of DWP applications to the Coast Guard and the Maritime Administration, respectively. Maritime Administration is the license issuing authority and works in concert with the Coast Guard in developing the Environmental Impact Statement, while the Coast Guard has primary jurisdiction over design, equipment and operations and security requirements. The DWPA established a specific time frame of no more than 330 days from the date of publication of a Federal Register notice of a “complete” application to the date of approval or denial of a DWP license. Among other requirements, an applicant for a DWP license must demonstrate consistency with the Coastal Zone Management Plan of the adjacent coastal States.

The Coast Guard and Maritime Administration, in cooperation with other Federal agencies, must comply with the requirements of the National Environmental Policy Act in processing DWP applications within the timeframes prescribed in the Deepwater Port Act. To date the Coast Guard has received a total of 17 DWP applications, including five that have already been licensed: Louisiana Offshore Oil Platform, Chevron-Texaco’s Port Pelican project (on indefinite hold), Excelerate Energy’s Gulf Gateway project, Suez LNG North America’s Neptune project, and Shell’s Gulf Landing(Shell has effectively stopped forward movement on this project). Recently, the Maritime Administrator has issued Records of Decisions for three others: Freeport McMoRan’s Main Pass Energy Hub, Suez’s Neptune project and Excelerate Energy’s Northeast Gateway. The latter two are off the coast of Massachusetts and the others are all offshore of Louisiana. Only the Gulf Gateway has been built so far. Three have been withdrawn and seven others are in various stages of processing. We are anticipating between two and four additional applications within the next several months.

To expedite the application review process, and more efficiently coordinate the activities of the numerous stakeholder agencies, the Coast Guard entered into a Memorandum of Understanding (MOU), involving more than a dozen agencies, including the Department of the Interior, FERC, NOAA, the Army Corps of Engineers and the Environmental Protection Agency. The MOU obliges the participating agencies to work with each other and with other



entities as appropriate, to ensure that timely decisions are made and that the responsibilities of each agency are met. These responsibilities include: assessing their particular role in the environmental review of DWP licenses; meeting with prospective applicants and other agency representatives to identify areas of potential concern and to assess the need for and availability of agency resources to address issues related to the proposed project.

### **LNG Deepwater Ports Safety and Security**

While conventional crude oil DWPs have been in operation around the world for many years, LNG DWPs are an emerging concept. Currently, there is only one in operation, off the coast of Louisiana. There are a variety of different designs under development that borrow from designs and technology that have been time-tested in the offshore energy and the LNG industries. Proposals include ship-shaped hull designs similar to existing Floating Production, Storage and Offloading (FPSO) units, platform based storage and regasification units, gravity based structures, and innovative docking structures that attach directly to the LNG carrier to serve as both a mooring and offloading system. Because this is a new concept, the Coast Guard's regulations apply a "design basis" approach, rather than mandate a series of prescriptive requirements. Under a "design basis" approach, each concept is evaluated on its own technical merits, using relevant engineering standards and concepts that have been approved by recognized vessel classification societies and other competent industrial and technical bodies. In addition, the Coast Guard's DWP regulations require that all LNG DWPs develop and implement a security plan that, at a minimum, will address the key security plan elements provided in Title 33 CFR Part 106, "Maritime Security: Outer Continental Shelf Facilities." A risk and consequence analysis is completed as part of the risk mitigation strategy and security measures are developed between the applicant and the Coast Guard local Captain of the Port.

Thank you for giving us this opportunity to discuss the Coast Guard's role in LNG safety and security and our relationships with other stakeholder agencies. I will be happy to answer any questions you may have.